

October 6, 2003

Dear Commissioners:

Commissioner Kathlene Abernathy in her Remarks to the United PowerLine Council Annual Conference, Sept. 22, 2003, stated "I want consumers to have a choice of multiple, facilities-based providers, including not only cable and DSL, but also powerline, wireless, and satellite services. Such a robustly competitive and diversified marketplace is something I would call broadband Nirvana." She further sticks with her Nirvana metaphor to explore "the path to enlightenment."

The metaphor Nirvana leaves something to be desired. "Buddha taught that our life in the physical world is merely illusion. When people let go of their worldly pain and worries, they can unite with the Great World Soul and achieve a state of complete peace called **Nirvana**."¹ I am wondering if that is an appropriate metaphor. If telephone carrier deregulation were "a robustly competitive and diversified marketplace," then Nirvana would be vacationing in one's cabin with no phone service.

Twenty-four year old Sharon Atkins is a college graduate working as a telephone receptionist for a large midwestern business.

I don't have much contact with people. You can't see them. You don't know if they're laughing, if they're being satirical or being kind. So your conversations become very abrupt. I notice that in talking to people. My conversation would be very short and clipped, in short sentences, the way I talk to people all day on the telephone. ...

You try to fill up your time with trying to think about other things: what you're going to do on the weekend or about your family. You have to try to use your imagination. If you don't have a very good one and you bore easily, you're in trouble. Just to fill in time, I write real bad poetry or letters to myself and to other people and never mail them. The letters are fantasies, sort of rambling, how I feel, how depressed I am.

... I never answer the phone at home.²

For Sharon "letting go of her worldly pain and worries" does not equate to data coming out of every orifice, but to "a state of complete peace--I never answer the phone at home." We need a better metaphor.

The prophet Mohammed and the sage Henry David Thoreau wrote their most famous works with divine help and the inspiration of nature, respectively. *How to Publish on the Internet* makes no claims to such lofty ideals, but we suppose we, too, should acknowledge whatever transcendent force has helped us with our writing. ...

Everybody's talking about the Internet, the "electronic highway" that leads to information, education, and entertainment. You've heard the talk, felt the

¹Student's Friend World History & Geography 1 ©
www.studentsfriend.com

²SOCIOLOGY OF EVERYDAY LIFE--Alienation and Industrial Capitalism, John J. Macionis, Sociology Fourth edition (Englewood Cliffs: Prentice Hall, 1987) p. 108.

enthusiasm--and now you want to learn to drive that highway.³
Why don't we just confine our enthusiasm to the "electronic highway" and leave broadband paradise to its many "adult" applications?

This NOI has asked us not to give in to irrational fears of RFI (radio frequency interference). I submit that this request rests on a fallacious assumption:

1. Hasty Generalization⁴

In chapter 4 we discussed the dangers in drawing conclusions on the basis of insufficient evidence. Many of our prejudices are a result of hasty generalization. A prejudice is literally a judgment made before the facts are in.

The assumption made that BPL would cause no harmful interference to over-the-air users of the same spectrum is prejudiced in that it was made before being adequately tested. The ARRL tests with certified equipment (which we hams paid for out of our own pockets) show that when access BPL comes to ones community, it will raise the noise floor somewhere between 50 dB and 66 dB depending. That's a factor of 100,000 to 4 million. Not easy to ignore.

All panic aside, one could well ask how he could fulfill the purposes of his amateur operator's privileges under such conditions--or worse if industry actually got you to loosen up Part 15 standards--, especially in the case of weak signal reception occurring in international radio contacts necessary to fulfill the ham's purpose of using his unique ability to further international goodwill. I mean, BPL under Part 15 (or a lax Part 15) seems a mite harsh to us hams. Like:

BEROWNE [*Reads*] 'Item. That no woman shall
come within a mile of my court'--

Hath this been proclaimed?

LONGAVILLE Four days ago.

BEROWNE Let's see the penalty. [*Reads*] '--on pain
of losing her tongue.' Who devis'd this penalty?

LONGAVILLE Marry, that did I.

BEROWNE Sweet lord, and why?

LONGAVILLE To fright them hence with that dread penalty.

BEROWNE A dangerous law against gentility.

[*Reads*] 'Item. If any man be seen to talk with a
woman within the term of three years, he shall
endure such public shame as the rest of the court
can possibly devise.'

³Andrew Fry & David Paul, How to Publish on the Internet (New York: Warner Books, 1995) **Acknowledgments** and **Preface**, pp. v & ix.

⁴Annette T. Rottenberg, Elements of Argument (Boston: Bedford Books of St. Martin's Press, 1991) **COMMON FALLACIES** p. 224.

This article, my liege, yourself must break;
For well you know here comes in embassy the
French king's daughter, with yourself to speak--
A maid of grace and complete majesty--
About to surrender up of Aquitaine
To her decrepit, sick, and bedrid father;
Therefore this article is made in vain,
Or vainly comes th' admired princess hither.

KING What say you, lords? Why, this was quite forgot.

BEROWNE So study evermore is over-shot.

While it doth study to have what it would,
It doth forget to do the thing it should;
And when it hath the thing it hunteth most,
'Tis won as towns with fire -- so won, so lost.

KING We must of force dispense with this decree;
She must lie here on mere necessity.⁵

Any ham within a mile of access BPL will lose his tongue, his ability to speak via the radio, especially to dx (foreign) stations. ("If you can't hear 'em, you can't work 'em.") "Sweet lord, and why?"

So study evermore is over-shot.
While it doth study to have what it would,
It doth forget to do the thing it should;
And when it hath the thing it hunteth most,
'Tis won as towns with fire -- so won, so lost.

Yep, this NOI is a study to see how we can develop the new technology of BPL, and when implemented nationwide, it will overwhelm all of the HF over-the-air users of the electromagnetic spectrum, and would be to technological development like burning a town to capture it and ending up with a heap of ashes.

So let's see where we stand now.

Home networking's moment has arrived thanks to a convergence of technologies. It starts with broadband Internet access, which has reached critical mass with nearly 20 million American homes boasting DSL or cable modems. That solves the "last mile" problem, delivering broadband to the door. And fortunately, three new technologies have arrived to help solve the "last room" problem. Depending on which you choose, every phone jack, every power outlet, even the air itself can deliver broadband content to every corner of the house at a cost of a few hundred dollars.⁶

We've got "broadband Internet access, which has reached critical mass with nearly 20 million American homes boasting DSL or cable modems. That solves the 'last mile' problem, delivering broadband

⁵William Shakespeare, *Love's Labour's Lost*, Act One, Scene 1.

⁶*Wired Magazine*, Issue 10.11 - Nov 2002 Copyright © 1993-2003 The Condé Nast Publications Inc. All rights reserved. Copyright © 1994-2003 Wired Digital, Inc. All rights reserved.

to the door." With some care in-house BPL might be filtered so as not to interfere with nearby ham radio operators. So what's the deal with access BPL?

Let's start by looking at the largest population centers.

MEGALOPOLIS, OR THE URBANIZATION OF THE NORTHEASTERN SEABOARD⁷

The frequency of large urban units scattered along the Atlantic seaboard in the northeastern United States was a striking realization to the foreigner who first visited the area, even fifteen years ago. In February, 1942, after a first trip from New York to Washington, the writer, being asked by Isaiah Bowman in Baltimore what was the most striking impression he had had as a geographer in his first months in this country, answered, "The density of great cities along this coast, from Boston to Washington."

In 1950, on the basis of the new census, the Bureau of Census prepared a map, later published as an illustration in a booklet of statistics on *State Economic Areas*, which showed clearly the continuity of an area of "metropolitan" economy from a little north of Boston to a little south of Washington, more precisely from Hillsborough County in New Hampshire to Fairfax County in Virginia. This seemed to be a first statistical demonstration on the map of the existence of a continuous stretch of urban and suburban areas, the main NE-SW axis of which was about 600 miles long, and within the frame of which dwelt in 1950 some 30 million people.

In the geography of the distribution of habitat this was a phenomenon unique by its size not only in America but in the world. It resulted obviously from the coalescence, recently achieved, of a chain of metropolitan areas, each of which grew around a substantial urban nucleus. The supermetropolitan character of this vast area, the greatest such growth ever observed, called for a special name. We chose the word *Megalopolis*, of Greek origin and listed in Webster's dictionary as meaning "a very large city."

...

A few years ago the reviewer of a book on the history of eastern railroads referred to the stretch of land along the tracks of the Pennsylvania and the Baltimore and Ohio railroads from New York City to Washington, D.C., as the "Main Street" of the nation. To be quite correct, such a "Main Street" ought to be prolonged along the rail tracks from New York City to Boston. There is, however, some truth in this symbolic expression. This section of U.S. 1 has come to assume within the American nation a special function, or a whole group of intertwined functions, which is hinted at in less urbanized areas by the concept of Main Street.

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⁷from *Economic Geography*, XXXIII (July, 1957), 189-200, by permission of the author Jean Gottman and the editor. (Copyright, 1957, by Clark University, Worcester, Mass.) Reprinted in Harold M. Mayer and Clyde F. Kohn, Readings in Urban Geography (Chicago: The University of Chicago Press, 1965) pp. 46ff.

The inheritance of the past still heavily influences present situations and trends. ... The faculty of direct access to the sea was only one of many factors which favored Megalopolis, and the others may still operate in the future. ...

Megalopolis arose as a grouping of the main seaports, commercial centers, and manufacturing activities in the United States. To a large extent the *maritime façade function* still is carried on: most of the seaborne foreign trade of the country goes through Megalopolis' harbors. The *manufacturing function* never stopped developing within the area, although many industries have been brought into operation in other sections of the United States.

... The *commercial and financial functions* remain extremely important for Megalopolis. Despite decentralization trends many times stressed and advocated, this area remains a decisive one for the American economy as well as for international financial relations. If New York City is no longer the financial capital it was earlier in the century, it is because much of that function migrated to Washington, with the increasing role of federal authorities in the management of the nation's business. As a market, for goods as well as for money, Megalopolis as a whole still dominates the rest of the national territory. Not only does it comprise one-fifth of the nation: this fifth is obviously the best paid and the wealthiest. Though other centers of concentrated wealth have arisen and developed elsewhere, especially on the West Coast and along the Great Lakes' shores, none can yet boast a mass approaching that of the Boston-Washington region. Nor has any had such a traditional grouping of financial and social activities as that suggested by some of New York's thoroughfares: Wall Street, Park Avenue, or Fifth Avenue, all fractions of the national Main Street.

I do believe the national Main Street portion of the electronic highway will do quite well without access BPL, and if you there in Washington are hoping to save a few pennies on your internet connection bill, I remind you that you are public servants.

Since its "friendly acquisition" of AT&T Broadband last November, Comcast - the largest broadband Internet provider in the United States -- has been committed to an accelerated expansion of services. Over the last three years, the company has spent nearly \$300 million on service upgrades in Oregon and southwest Washington alone. On a more local level, 11.5 percent of the 117,000 residents who are currently eligible for broadband Internet in Eugene subscribe to Comcast.

Meanwhile, Qwest has worked hard to catch up. Last spring, the phone and DSL Internet service provider announced an incremental \$75 million expansion campaign for its 14-state region.

"We're doing what we can to expand," Qwest spokeswoman Silvia McLachlan said, although she couldn't reveal the company's current market share. "Eugene is a key market for us." In order to qualify for Qwest DSL in Lane County, the actual phone wire connecting a household to the central office must be less than 18,000 feet long or within a three-mile radius. ...

"Stay tuned," she said for those outside the coverage area. "Hopefully your home will be implemented soon." Qwest's advice doesn't surprise Williams. "Phone companies have been telling customers to 'hold tight' for some time now," he said.

"With broadband high-speed Internet, all you need is a cable TV line to qualify." By high-speed, Williams means a 1,500 Kbps download speed for about \$55 a month with basic cable television. Qwest offers a maximum 640 Kbps download speed for a similar price, though a phone line is required.

Williams said having the higher speed is Comcast's key advantage in student communities.

"It's primarily broadband users who are downloading lots of music," he said.

As if 1.5 megabit isn't fast enough, Comcast is currently testing double the downloading speed -- over 3 megabit -- in markets in Atlanta and Pittsburgh for the same price. Williams said the project is just one of several ways Comcast is trying to improve its services. "This is a very competitive market," he said. "We'll have to stay competitive to stay in business."⁸

Large cities like Atlanta and Pittsburgh are doing quite well, and smaller ones like Eugene are not far behind--all sans BPL. Taking population as a factor in speeding along inexpensive high speed access, let's look at a model, albeit simple, of populations of cities:

THE SIZE AND SPACING OF CITIES⁹ by Charles T. Stewart, Jr.

The regular spacing of towns has often been noted. The distance between any two adjacent towns in the same size class fits fairly well the formula $(P_1 P_2)/D = A$, in which P_1 and P_2 stand for the populations of the two towns and D for the distance between them and A is a constant for any given region. The distribution of towns by size has also been shown to follow an empirical rule, the so-called rank-size rule. In Zipf's version,¹⁰ the rule states that if all towns in a region are arranged in descending order by population, the size of the r th town is $1/r$ the size of the largest town, according to the series $1, 1/2, 1/3, \dots, 1/r$.

Therefore if the largest towns (Pittsburgh and Atlanta) are sitting pretty with respect to high speed internet access, then town r might not have realized all its possibilities for internet service yet, but rather than destroy all HF over-the-air use in the country with BPL, we will for sake of argument tell town r to hold tight. It seems a fair trade.

Well, what about town $r+1$? It is only slightly smaller than town r which we've deemed better to hang on rather than implement BPL with all its interference nationwide. If town r can hold tight, then town $r+1$ should be able to hold tight just a little longer, and so forth.

⁸"Comcast accelerates area service expansion", Caron Alarab, News Reporter, *Oregon Daily Emerald* - Saturday, October 04, 2003

⁹*Geographical Review*, XLVIII (April, 1958), 222-45--with permission of the author and the editor. (Copyright, 1958, by the American Geographical Society, New York). Reprinted in Mayer and Kohn, p. 240

¹⁰G.K. Zipf, *National Unity and Disunity* (Bloomington, IN, 1941)

My point is where do we draw the line? For which town r that we were content to let hold tight, do we say that $r+1$ has just a little too long to hold tight, so we will sacrifice all over-the-air HF use in the country so they can get broadband access quicker with BPL? It's a tough political decision when phrased that way, so let's just say we are doing it for the farmer, bringing BPL to urban America.

*The Agricultural Town.*¹¹

Those communities whose primary economic function is the distribution of finished goods to the agricultural hinterland were among the immediate sufferers from the depression of the 1930's. The prosperity of these areas during and after World War II was favorably reflected in the economy of the agricultural town. The relation between the price of farm products and the economy of the small town is obvious. The interests and fortunes of the small town are inextricably intermingled with those of the farmer. In depression or prosperity, they rise and fall together.

As a trading center for the surrounding agricultural community, the contemporary small town fulfills fewer functions than was true at the turn of the century. Farmers still depend upon the local community for most of their groceries and for their schools and churches. When it comes to important expenditures for clothing, machinery, or furniture, however, they prefer the wider selections available in the larger towns and cities. Many farmers drive fifty or a hundred miles to make such purchases. Even for recreation the village no longer satisfies the mobile ruralite. Young and old alike enjoy the sense of participating in urban entertainments. The young people may seek out some place where they can dine and dance. Their elders may find their escape from the small town in the urban movie palace. The farmer is becoming urban-minded and demands for himself some of the advantages which modern transportation has made possible. The small town is often the sufferer from such increased mobility.

CITIES AS CENTRAL PLACES¹²

Among the most important urban functions are those which cities, towns, villages, and hamlets perform for the areas most immediately contiguous: the "continuous hinterland" or "umland." The number and complexity of these functions vary with the size of the city and with other variables, including the nature of the areas which are served. Within a large region, however, some of the functions occur almost universally in urban settlements of a given size. These are known as "central-place" functions, and the settlements within which they occur are called "central places."

Cities of a given size universally have central libraries,

¹¹Mabel A. Elliott, Ph.D., Professor of Sociology, Pennsylvania College for Women, and Francis E. Merrill, Ph.D., Professor of Sociology, Dartmouth College, Social Disorganization (New York: Harper & Brothers, 1950) p. 501.

¹²Mayer and Kohn, p. 183.

these days with computers and high speed internet access. These days farmers are mobile and come to these cities for other purposes, and there is nothing to stop them from using any of the various public internet resources the cities have.

Besides just visiting the big city, farmers are moving to it.

THE RISE AND GROWTH OF CITIES¹³

An adequate explanation of the distribution, size, function, and growth of cities, as well as their layout and build, calls for an examination of the cultural conditions that were involved in their establishment and subsequent growth. This principle holds true even for the United States, where, in the short span of 150 years, an agricultural society has been replaced by a highly industrialized and urbanized way of life.

Our agricultural society has been replaced by a highly industrialized and urbanized way of life. We are not a nation of farmers hungry for high speed internet. Okay, but what about the ones who do want it?

Standard of Living¹⁴

The ratio of agricultural to non-agricultural population, when due allowance has been made for the region's external-trade position in farm products, is an indirect measure of another determinant of the distribution of urban population--the standard of living. The urban ratio in predominantly wheat-growing regions of the United States is much higher than in comparable regions of the Ukraine. Furthermore, in areas of comparable urban population density, the larger towns seem more closely spaced in the United States and the very small towns in the U.S.S.R.

High income of American wheat farmers means that nearly all have cars; high income of American society at large means that the road network in rural areas is denser than in the Soviet Union and roads are better. High income of both farmers and urban residents in the United States means that a much larger part of income is spent for manufactured goods and for services, that is, for the products of urban industry. This statement is nothing but a rewording of Engel's law that with increasing income a decreasing proportion is spent on food.

In America the larger cities are closer together, more libraries in reach. The farmers who own cars will some day own wireless and satellite services for their computers if they hold tight.

What it amounts to is a quicker upgrade to high speed internet for some if we are willing to sacrifice our HF and low VHF spectrum over-the-air uses--a tradeoff the BPL industry has not been forthcoming about. Holding tight will allow us to keep our HF and low VHF spectrum over-the-air uses, and end up with high speed internet, from other carriers, eventually anyway.

I say hold tight.

Respectfully Submitted,

¹³Mayer and Kohn, p. 183.

¹⁴Mayer and Kohn, pp. 248f.

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